

## Further Notes on *Felisacus* Distant (Heteroptera; Miridae; Bryocorinae)

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IN AN EARLIER PAPER (Woodward, 1954) the author reviewed the species groups of *Felisacus* and described and redescribed some of the included species. Since then, additional material has accumulated of *elegantulus* (Reuter) and *flicicola* (Kirkaldy); in the present paper, further locality records are given and additions made to the descriptions, with a more complete account of the range of variations and of the nature of the specific differences. A new species, *F. dauloi*, is described from the highlands of New Guinea. The female valvulae of the three species are described and figured; it is hoped that as further descriptions become available these will provide additional criteria for the separation of species groups. The ovarian eggs of *elegantulus* and the male genitalia of *flicicola* are figured for the first time.

### ACKNOWLEDGMENTS

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### ELEGANTULUS Species Group

*Felisacus dauloi* n. sp.

Figs. 1a; 2e, f

STRUCTURE: (Holotype female.) Head across eyes 1.32 times median length (0.67:0.51); interocular space of vertex 1.85 times width of eye (0.32:0.17). Base of head forming a cylindrical collum separated from rest of head by an annular constriction; collum 0.81 times as wide as head immediately behind eyes (0.38:0.47) and 0.57 times head across eyes; width behind eyes 0.70 times width across eyes. Rostrum 1.20 mm. long, reaching to middle of mesosternum. Antennae with segment I cylindrical, not swollen subbasally; II, 1.26 times as long as I (1.35:1.07); III, 1.50 times I (1.60:1.07); IV, 0.56 times I (0.60:1.07); I, 0.95, and II, 1.20 times basal width of pronotum.

Pronotum in mid-line 1.84 times as long as head (0.93:0.51); 1.21 times as wide posteriorly as long (1.13:0.93), 2.64 times as wide as across anterior collar (1.13:0.43), and 1.69 times as wide as head across eyes; shape and punctuation of pronotum as in *elegantulus*, except that posterior margin is somewhat more deeply excavated.

Hemelytra greatly surpassing abdomen, costal margin of corium 2.43 times as long as pronotum (2.27:0.93) and 3.15 times as long as cuneus (0.72).

*Genitalia*: First (mesial) valvulae with apex subacute; apical dorsal teeth large. Second valvulae with apex subacute; portion below sclerotized ridge abruptly narrowed before

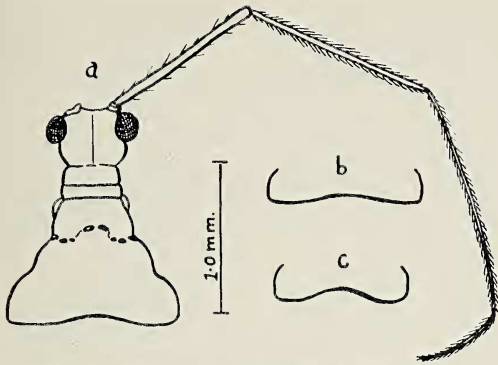


FIG. 1. a, *Felisacus dauloi* n. sp., female, head and pronotum; b, *Felisacus elegantulus* (Reuter), female, posterior margin of pronotum; c, *Felisacus filicicola* (Kirkaldy), female, posterior margin of pronotum.

apex; translucent portion above ridge in form of a subtriangular lobe, considerably narrowed shortly before apex.

*Length*: 5.1 mm.; width across hemelytra, 1.25 mm.

The measurements given above in parentheses are in millimeters.

**COLOUR**: Head, thorax, abdomen, and first antennal segment shining fulvous; apex of first antennal segment tinged with reddish brown, second segment blackish brown with reddish tinge, third and fourth black; eyes dark; type female with a fine red line between and above level of antennifers; type female without trace of infuscations on pronotal shoulders; rostrum brown; abdomen tinged with green. Scutellum very pale and less shining fulvous, darker brown along margins. Legs pale yellowish brown; apices of femora and bases of tibiae darker and tinged with red; rest of femora slightly tinged with green; second and third tarsomeres infuscated. Hemelytra with veins yellowish brown, somewhat infuscated at basal angle of cell, along anal vein and posterior margin of clavus, narrowly along costal margin of corium, and very narrowly around margin of membrane; a short sooty band on corium at apex of claval suture; rest of corium and membrane colourless, transparent (membrane with the usual rugulose surface, iridescent in reflected light); clavus slightly more opaque.

**HOLOTYPE FEMALE**: Daulo Pass, Central Highlands, New Guinea, ca. 8,000 ft., August 20–22, 1956, sweeping ferns in rain forest, T. E. Woodward. Named for place of collection. Deposited in Queensland Museum.

*F. dauloi* most nearly resembles *elegantulus* (Australia and New Zealand) and is much more closely related to it than to the one other known New Guinea species, *nigricornis* Poppius, described from the lowlands of Huon Gulf. Quite likely *dauloi* is a relict species persisting in the highlands of New Guinea after their separation from the more southerly regions of Australia. The close resemblance between *dauloi* and *elegantulus* becomes apparent from a comparison of the figures given above with those tabled below. The main differences are those of size, notably the greater total length of *dauloi*, its wider head, longer head, pronotum, hemelytra, and first three antennal segments. But in almost all proportions, including those by which *elegantulus* differs from the closely related *filicicola*, the specimen of *dauloi* falls within or almost within the known range of the former species. The only exception in the table is the ratio of the width behind the eyes to the width across the eyes. The rostrum is proportionately shorter than in *elegantulus* and the posterior margin of the pronotum rather more deeply excavated. The valvulae of the female differ as figured. In colour *dauloi* is very similar to the pale form of *elegantulus*, but the first antennal segment is paler.

From *filicicola* the new species differs in its greater size, including width of head and pronotum at base and length of head, pronotum, hemelytra, and third antennal segment; the paler colour; the different ratios for width of pronotum: width of head, antenna III: I, antenna I: width of pronotum, antenna II: width of pronotum, posterior: anterior width of pronotum; the differently formed valvulae.

From the other species of the *elegantulus* group *dauloi* differs notably as follows: from *nigricornis* Poppius in the larger size, paler colour (particularly of head, pronotum, scutel-

lum, clavus, and first antennal segment), relatively shorter pronotum and rostrum, longer second antennal segment in proportion to first; from *jacobsoni* Poppius in the greater size, head without brown crossbar, paler pronotal base, first antennal segment and hemelytra, the nonrugulose crown, the longer third antennal segment relative to second, the relatively shorter pronotum; from *ochraceus* Usinger in the greater size, paler cuneus and inner clavus, relatively smaller eyes, pronotum broader at base in proportion to length of antennal segments I and II, corium longer in proportion to pronotum; from *amboinae* Woodward in the much greater size, paler colour (particularly of first antennal segment and hemelytra), the relatively shorter rostrum, the proportionately longer third antennal segment, the narrower eyes in proportion to vertex, the pronotum wider at base in proportion to anterior collar, the corium longer in proportion to pronotum; from *adamsi* Carvalho in the greater size, different colour (especially paler first antennal segment), relatively shorter rostrum, relatively longer second antennal segment, relatively narrower eye in proportion to vertex.

#### *Felisacus elegantulus* (Reuter, 1905)

**COLOUR:** Of the two main colour forms (Woodward, 1954), only 2 of 20 males and 2 of 12 females from Australia are of the second type (extensive red coloration on head; prothoracic shoulders not or scarcely infuscated). This form appears to be much less prevalent than in New Zealand, where it is represented by three-fifths of the specimens examined. There does not seem to be any correlation between colour and season.

**GENITALIA. Male:** The claspers (Fig. 3c, e) are redrawn for comparison with those of *filicicola*, since previously (Woodward, 1954; fig. 5) they were drawn *in situ* on the pygophor. **Female:** (Fig. 2a, b) First (mesial) valvulae narrowly rounded at apex. Second valvulae more narrowly rounded at apex than in *filicicola*, much less so than in *dauloi*; dorsal trans-

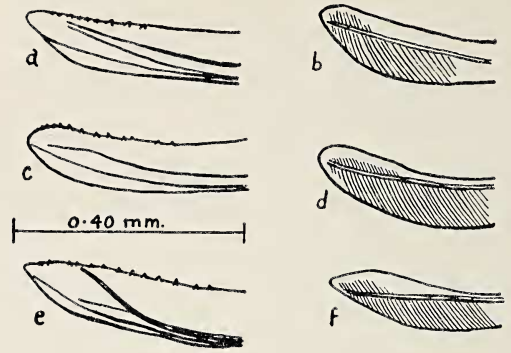


FIG. 2. Female genitalia, *elegantulus* group. *Felisacus elegantulus* (Reuter): a, Apex of first (mesial) valvula; b, apex of second valvula. *Felisacus filicicola* (Kirkaldy): c, Apex of first valvula; d, apex of second valvula. *Felisacus dauloi* n. sp.: e, Apex of first valvula; f, apex of second valvula.

lucent flange broader than in either of these species. The valvulae figured are of an Australian specimen, but those of New Zealand females are similar in all respects.

**OVARIAN EGGS:** (Fig. 3f) Short ellipsoid, slightly curved; opercular end indented as shown; length 0.60 mm., width 0.35 mm. From a female taken at Barrington Tops, New South Wales, December 22, 1954.

**ADDITIONAL RECORDS:** Australia, South Queensland, Carnarvon Gorge, 4 males, 2 females, May 29, 1954, T. E. Woodward; Lam-

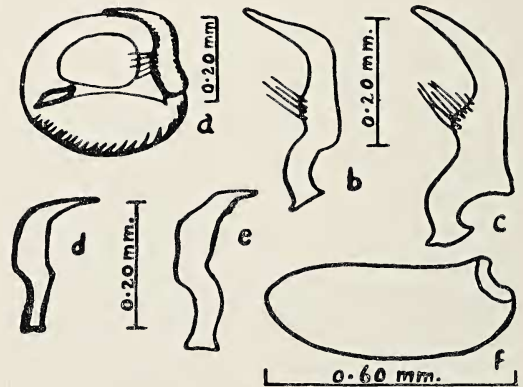


FIG. 3. *Felisacus filicicola* (Kirkaldy), male: a, Pygophor and claspers, posteroventral; b, right clasper; d, left clasper. *Felisacus elegantulus* (Reuter): c, Right clasper; e, left clasper; f, ovarian egg.

TABLE 1  
COMPARISON BETWEEN *F. elegantulus* AND *F. filicicola*

	<i>F. elegantulus</i>		<i>F. filicicola</i>	
	Male	Female	Male	Female
Head, width across eyes	0.53-0.59	0.55-0.63	0.56-0.60	0.57-0.60
Head, median length	0.37-0.44	0.37-0.45	0.36-0.43	0.39-0.44
Width, interocular space of vertex	0.24-0.29	0.25-0.31	0.25-0.28	0.27-0.29
Width of eye, dorsal	0.14-0.16	0.15-0.17	0.15-0.16	0.15-0.17
Width of head behind eyes	0.38-0.44	0.40-0.47	0.39-0.41	0.40-0.44
Width of collum	0.32-0.35	0.34-0.39	0.31-0.33	0.33-0.35
*Length, antennal segment I	0.73-1.00	0.76-1.00	1.00-1.11	1.01-1.07
Length, antennal segment II	0.89-1.24	0.99-1.22	1.11-1.33	1.13-1.27
Length, antennal segment III	1.29-1.47	1.21-1.48	1.20-1.43	1.17-1.36
Length, antennal segment IV	0.47-0.60	0.55	.....	0.44-0.49
Length of rostrum	1.07-1.27	1.17-1.33	1.07-1.13	1.07-1.19
Pronotum, median length	0.65-0.80	0.68-0.85	0.63-0.73	0.63-0.73
*Pronotum, basal width	0.83-0.98	0.90-1.12	0.79-0.87	0.87-0.92
Pronotum, width of anterior collar	0.36-0.40	0.37-0.43	0.35-0.37	0.36-0.40
Corium, length (costal)	1.49-1.83	1.68-2.07	1.53-1.64	1.65-1.73
Cuneus, length (external)	0.53-0.63	0.60-0.67	0.52-0.63	0.57-0.61
Width (maximum across closed hemelytra)	0.91-1.01	1.04-1.20	0.92-1.01	0.99-1.13
Total length	3.6-4.3	3.9-4.7	3.6-3.9	3.9-4.2
Ratios				
Width vertex: width eye	1.63-2.00	1.69-2.00	1.66-1.82	1.60-2.05
Head, width: length	1.32-1.48	1.31-1.41	1.36-1.56	1.33-1.50
*Width, behind: across eyes	0.70-0.75	0.71-0.76	0.68-0.71	0.69-0.73
*Width, collum: across eyes	0.58-0.62	0.60-0.65	0.55-0.57	0.56-0.60
Width, collum: behind eyes	0.78-0.86	0.82-0.87	0.77-0.83	0.79-0.83
*Width, pronotum (basal): head	1.55-1.66	1.58-1.76	1.39-1.50	1.52-1.59
Length, pronotum: head	1.63-1.90	1.70-1.91	1.53-1.83	1.64-1.80
Antenna II:I	1.16-1.29	1.14-1.30	1.05-1.20	1.12-1.25
†Antenna III:I	1.33-1.58	1.48-1.60	1.08-1.29	1.14-1.34
*Antenna IV:I	0.54-0.64	0.59-0.72	.....	0.43-0.48
†II: basal width pronotum	1.08-1.27	1.03-1.19	1.33-1.54	1.27-1.38
†I: basal width pronotum	0.89-1.02	0.84-0.93	1.22-1.41	1.12-1.17
Width pronotum, posterior: anterior	2.27-2.47	2.39-2.63	2.19-2.40	2.30-2.45
Pronotum, basal width: length	1.21-1.31	1.24-1.33	1.17-1.33	1.20-1.33
Length, corium: pronotum	2.20-2.65	2.29-2.54	2.14-2.46	2.27-2.41
Length, corium: cuneus	2.79-3.19	2.63-3.10	2.47-3.00	2.72-2.92

\*Useful supplementary characters, which separate most individuals of one species from most individuals of the other.

†Characters that appear to be good distinguishing features

ington Plateau (Lower Ballunju Falls), October 30, 1955, 1 male, *T. E. Woodward*; Brisbane, 4 males, 2 females, 1954, *T. E. Woodward*. New South Wales: Barrington Tops, 2 males, 2 females, December 22, 1954, *T. E. Woodward*.

SEASONAL OCCURRENCE: Adults have been recorded from South Queensland in January, March, May, June (early), October, and December (i.e., in all seasons except winter) and from New Zealand (where less extensive collecting has been done) in January, February,

and April. Late instar nymphs have been collected in Queensland in January and June and in New Zealand in January and February.

CORRIGENDUM: In Woodward (1954: 43), 11th line from bottom of first column, the word "width" should read "length," as the figures would indicate.

*Felisacus filicicola* (Kirkaldy, 1908)

COLOUR: All the Samoan specimens noted below differ in some respects from the description of two Fijian specimens given by the

author (1954): a more or less distinct narrow red line between and above level of antennifers (absent in one female); antennal segment I more or less infuscated brown or reddish brown except for pale base; each side of base of pronotum more or less extensively fuscous or black; tibiae and apex of femora red above; cuneus yellow, a red or reddish-brown band bordering cell (entirely yellowish-brown in one female); abdomen red or reddish brown above and at apex. From Kirkaldy's note on coloration (1908: 377) it is evident that the same or a very similar colour form also exists in Fiji. Within the author's experience, *filicicola* can always be distinguished at sight from *elegantulus* by its darker and often more reddish appearance.

**GENITALIA.** *Male:* Claspers very similar to those of *elegantulus*, but differing in proportions as shown. Right clasper (Fig. 3b) with outer subbasal angle less strongly produced; apical half more abruptly curved. Left clasper (Fig. 3d) more abruptly and more evenly curved toward apex. *Female:* (Fig. 2c, d) First (mesial) valvulae broadly rounded at apex. Second valvulae more bluntly rounded than in either *elegantulus* or *dauloi*; dorsal translucent flange narrower than in *elegantulus*, not subtriangular as in *dauloi*.

**ADDITIONAL RECORDS:** Western Samoa, N. Upolu, Malololelei, 2,000 ft., 2 males, July 30, 1954, R. A. Cumber; 3 males, 2 females, January 19, 1956, R. A. Cumber; 3 males, 3 females, January 19, 1956, T. E. Woodward; Afiamalu, 2,100 ft., 1 male, 2 females, January 6, 1956, T. E. Woodward.

Because of the closeness of *filicicola* and *elegantulus* to each other and to *dauloi*, a de-

tailed comparison has been made and the results are tabulated below. The measurements are based on 17 specimens of *filicicola* (9 males and 7 females from Samoa; 1 female from Fiji) and 54 specimens of *elegantulus* (23 males and 10 females from Australia; 8 males and 13 females from New Zealand). Measurements are in millimeters.

The figures show the considerable intraspecific range and the near correspondence or wide overlap between the species for many of the values. The wider range of measurements now available for these two species also allows more critical comparison with species which are represented by or have been described from one or a few individuals.

*Filicicola* was described by Kirkaldy (1908) as a variety of *elegantulus* and raised to specific rank by Knight (1935). In redescribing *filicicola* (Woodward, 1954), I listed it as a distinct species but in discussing the species groups considered it not unlikely that it might eventually prove to be a subspecies of *elegantulus*. With the additional data available I am now reasonably convinced of its specific distinctness.

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